

cal being, as a rule, subsequent in the order of development to the symmetrical.

The speaker then concluded by observing that a careful consideration of the facts of Palæontology seemed to lead to these results:—

1. That there is no real parallel between the successive forms assumed in the development of the life of the individual at present, and those which have appeared at different epochs in the past; and

2. That the particular argument supposed to be deduced from the heterocercality of the ancient fishes is based on an error, the evidence from this source, if worth anything, tending in the opposite direction.

At the same time, while freely criticising what he considered to be a fallacious doctrine, Mr. Huxley expressly disclaimed the slightest intention of desiring to depreciate the brilliant services which its original propounder had rendered to science.

#### BOTANICAL SOCIETY OF EDINBURGH.

April 12, 1855.—Professor Balfour, President, in the Chair.

The following papers were read:—

1. "On Placentation," by John Cleland, Esq. See 'Annals,' vol. xv. p. 336.

2. "Notes on the Flora of the neighbourhood of Castle Taylor, in the county of Galway," by A. G. More, Esq., of Trinity College, Cambridge.

The author enters into a detailed account of the indigenous flora of that part of Ireland, contrasting it with that of other parts of the United Kingdom. The district is rendered interesting from its forming part of the singular limestone-country of the West of Ireland, the surface broken and rocky, and but slightly elevated above the sea-level: nevertheless several subalpine species are to be found in it, such as *Dryas octopetala*, *Saxifraga hypnoides*, *Hieracium cerinthoides*, *Arbutus Uva-ursi*, *Juniperus nana*.

He then arranges the produce of his district and the classes defined by Watson, and enumerates the more interesting or peculiar plants present or absent in each case. He points out the following species as seen by him, but not marked as Irish in 'Babington's Manual':—

<i>Cardamine sylvatica</i> .	<i>Hieracium cerinthoides</i> .
<i>Viola stagnina</i> .	<i>Epipactis media</i> .
<i>Spiræa filipendula</i> .	<i>Potamogeton lanceolatus</i> .
<i>Geum intermedium</i> .	<i>Alopecurus agrestis</i> .
<i>Myriophyllum alterniflorum</i> .	<i>Lolium italicum</i> .

3. "Notes on the Flora of the Bass Rock," by Prof. Balfour.

4. "Notice of Plants collected during a trip to Loch Lomond in July 1854," by Prof. Balfour.

5. "Register of the Flowering of Spring Plants in the Royal Botanic Garden, as compared with the four previous years," by Mr. M'Nab.

May 10.—Professor Balfour, President, in the Chair.

Mr. P. S. Robertson exhibited germinating plants of the following species of Conifereæ, to show the remarkable variation in the number of their cotyledonary leaves :—

“*Pinus nobilis*; normal number of cotyledons 6, varying with 4, 5, and 7.

“*Pinus Sabiniana*; 14, 15, 16 prevailing numbers; variations 13, 17, 18, 19.

“*Pinus Jeffreyi*; prevailing numbers 9 and 10, varying with 7, 8, 11.

“*Abies Hookeriana*; usual number 4, varying from 3 to 5.

“*Pinus Beardsleyi*; prevailing numbers 6 and 7, varying with 3, 5, 8, 9, and 10. This species occasionally produces two perfect plants from one seed.

“*Thuja Craigiana* (*Libocedrus decurrens*); usual number 4, varying from 1 to 4.

“*Cryptomeria japonica*; usual number 3, varying from 2 to 4.

“*Pinus Lambertiana*; usual number 14, varying with 10, 12, and 13.

“*Pinus monticola*; usual numbers 8 and 10, varying with 6, 7, 9, 11.”

The following papers were read :—

1. “On some new species of British Freshwater Diatomaceæ, with remarks on the value of certain specific characters,” by Prof. Gregory.

After some remarks on the distribution of Freshwater Diatoms, the author proceeded to consider the value of certain specific characters.

Species, among Diatoms, are generally distinguished by the following particulars, viz. the form; the structure, where anything remarkable occurs; the length of the individual frustule, within the usual limits; the arrangement and number of the striæ, where these are visible, as well as their nature, whether moniliform or continuous, narrow or broad, close or distant, &c.; and frequently the aspect of the median line, if present, and of the nodules at its centre and extremities.

*The form or outline*.—This varies so much, that, if we were guided by it, we should make many false species, as is shown by the fact, that these forms pass by gentle gradations into each other. This kind of variation occurs, for example, in *Navicula lacustris*, of which two very different forms occur; but there is a third which is precisely intermediate. It is seen also in *Navicula elliptica*, some forms of which are oval, but of different proportions, others are constricted. *Navicula dubia* is believed to belong to the same species as *N. amphigomphus* and *N. dilatata*, and by some persons, all the three are united to *N. firma*. It is certain that all four agree in having the side lines, but they all differ in outline. *Navicula lepida*, a new species, exhibits three varieties, differing in form. But the most remarkable example is found in *Navicula varians*.

*The number of striæ.*—In some species, perhaps in many, this character is by no means constant. In *Navicula varians*, I find that in the smaller individuals there are often 24 to 26 striæ in 1-1000th of an inch, while in the larger there are only 14 to 16, and this in individuals of the same type of outline. Smith describes *Pinnularia divergens* with 11 striæ in 1-1000th inch, while I find it more frequently with from 22 to 26 in 1-1000th inch—the arrangement, which is peculiar, being the same in both. A very striking example occurs in *N. elliptica*, which, as we have seen, also varies in form. The species, as described by Kützing, has very coarse striæ, even coarser than appears by any of the figures. But in a variety to which I have directed attention, and which I regarded on this account as a distinct species, till I found a gradual transition to the first-named type, the striæ are so very much finer, being about three times more numerous, that the aspect of the frustule is totally changed. In comparing examples of the extreme types in regard to striation, I took individuals of equal size, and I found in one very coarse striæ; in the other, striæ so fine as not to be easily seen unless the valve was placed in the most favourable position with reference to the light.

*The appearance of the median line and nodules.*—In the coarsely striated variety of *N. elliptica*, there are lines on each side of the median line, forming a double cone, of which the bases meet near the centre. But in the finely striated variety, these lines are parallel to the median line; only bending outwards round the central nodule. This assists in giving a very different aspect to the two forms, which yet are connected by a graduated chain of transition forms.

We have then, if we consider only the three characters of form or outline, number of striæ, and aspect of medial line and nodules, evidence that great variations may occur in any one of them. Nay, in *N. elliptica* and *N. lepida*, variations occur in all three together. In such cases as these last, it is difficult to define the species by these characters in the usual way, and we have apparently no resource but to state the fact of the tendency to vary in one or more of these points, as one of the specific characters. In *N. varians* the arrangement of the striæ is always the same, as it is also in *Pinnularia divergens*, and many others; but in *N. elliptica* even this fails, for the striæ are highly radiate in the coarsely striated form, and nearly parallel in that with finer striæ.

Enormous variations in size occur, even in the same type of form. If *Pinnularia megaloptera* be referred to *P. lata*, we have a variation in length from about 20 ten-thousandths of an inch to nearly 80.

The distribution of Diatoms over the world is one of the most remarkable points about their history. Not only do we find, if we examine a gathering from any part of the world, that most of the forms are identical with those of our own waters; but in tracing these minute organisms through the latter to the earlier sedimentary rocks (and it is said that they occur in the lower Silurian strata, the oldest in which any organic remains occur), we find still the greater number of species to be the same as those of the present day.

Ehrenberg, in his last great work on the distribution of microscopic

forms over the earth, both in the present period and in past geological times, has shown that in all soils in which plants grow, Diatoms are present, often in considerable quantity, and in great variety. He ascribes to them a great part in the formation of such soils, and it is probable that by their life and growth they extract much silica from the water in which they live, and transfer it at their death to the soil. The sediment of all rivers contains a considerable amount of Diatoms, as, for example, the mud of the Nile and that of the Ganges, which have formed the great Deltas of Egypt and Bengal.

2. "Remarks on specimens of *Megacarpæa polyandra*, Bentham," by Dr. Balfour.

The interest of the plant consists in its possessing a number of stamens (from 12 to 15), quite abnormal in the order of Cruciferae, to which it otherwise belongs; and which might seem, taken alone, to place it between that order and Papaveraceae; but when these extra stamens are viewed as developments of the glands which are present in the Cruciferae on the disk or torus, between the petals and the ovary and ordinary stamens, the plant may well be referred to that order.

The genus *Megacarpæa* was first discovered, I believe, by Fischer, in the salt steppes and calcareous hills of Turkistan, in the neighbourhood of the Caspian Sea; and by Ledebour in Siberia; and was originally referred to *Biscutella*. Two species are described by DeCandolle (Prod. i. 183), but so imperfectly, that till further information is obtained, it is impossible to determine whether the plant before us, from the Himalaya, is identical with either of them, especially *M. laciniata* from the Altai Mountains, or a new species which is to bear the name of *M. polyandra*.

*Megacarpæa* (probably this very species) was next met with by Dr. Hugh Falconer in the Highlands of Little Tibet, on the Husora River, an affluent of the Indus, and in the same country by the late Mr. J. E. Winterbottom, who described it to me as growing 6 to 8 feet high on the Barzil Pass, upper glen of the Kishenganga River, between Kashmere and Astor; but neither of these botanists was, I believe, so fortunate as to obtain the flowers, which were first seen by Capt. R. Strachey in 1848, on a visit to the glacier sources of the Pindar River in Kumaon, up to which date the existence of the plant in the British Himalaya was unknown; nor has it been discovered, so far as I am aware, in any other of our provinces—at least those south of the Sutlej River. Here it occurs in three localities, where the climate resembles or approximates to that of Little Tibet, Turkistan, and the other habitats, viz. extreme cold in winter, and extreme heat and aridity in summer, conditions which have proved favourable to the migration or presence of many other Tibetan and Siberian plants on the dry northern slope of the Himalayan range, where a system of vegetation is established in marked contrast with what prevails on the Indian face, which is annually for three months deluged with rain\*.

\* A very instructive example of the manner in which plants are distributed in distant regions of similar physical character is afforded by *Calli-*

In Kumaon the plant occurs on the open sunny downs, at from 11,500 to 14,000 feet above the sea-level, where all arboreous vegetation has ceased. It is well known to the mountaineers by the name of *Roogee*. They eat the pounded root as a condiment; it has, like the whole plant, a strong permanent odour and flavour, something like horse-radish. The localities in which it grows are—1. Champwa, near the Kaphini glacier; 2. near the Soondurdhoongee glacier, the heads of the Pindar River; and 3. at Ralim, on one of the spurs of the snowy Panch—Choola Range, which bounds the next great valley to the east. Here the *Roogee* flowers in May—June, and ripens its fruit in September—October. The root is fusiform, a foot or more in girth at the collar, and from 1 to 2 feet long, forked below; internally of light cellular substance, externally exhibiting very numerous horizontal annular ridges. Several annual stems from 4 to 6 feet high. When young in winter protected by many erect, rectangular, straw-like scales. Radical leaves spreading, from 2 to 2½ feet long, the exterior half occupied by 7 or 8 distant, distinct, subopposite or alternate pinnæ; petiole dilated at the base; cauline leaves scattered, erect, pinnato-pinnatifid, about a foot long, with 10 to 12 segments, linear-lanceolate, acuminate, incised, the lower ones more or less separate, terminal more confluent. Flowers in dense terminal and axillary leafy corymbs, shorter than the leaves; small, white or yellowish-white, with a sweet fragrance or strong odour of horse-radish (according to taste), and much frequented by bees, flies, &c. Peduncles and pedicels villous, the latter long and one-flowered. Sepals 4, oblong, obtuse, coloured, from 1-5th to 1-4th inch long; petals alternate, oval, veined, half the height of the sepals; stamens 12 to 15, hypogynous, erect, as long as the calyx, and disposed in 2 or 4 sets. Ovary one, flat, obcordate, resembling the silicle of *Capsella Bursa-Pastoris*, with 2 auriculate, 1-seeded cells; stigmas 2, on a very short style. The silicle is about 1¾ inch by 1¼, one of the cells being abortive.”

*gonum Pallasii*. This, like the *Megacarpæa*, abounds in the Caspian province, and equally, or much more, in the sandy deserts of Western India, between the Jumna and the Indus rivers. The heat for many months annually is extreme, and one is at first surprised to find a plant flourishing here, which is also indigenous to the steppes of the Caspian, where the winter cold is equally extreme. But, as is now well known, the Caspian and its deserts occupy a deep hollow at the western end of a plain descending from the sources of the Oxus and Jaxartes, and, as a consequence of this low position on the earth's surface, possess a summer temperature as high as the winter one is low, and perhaps equal to that of the Indian desert above referred to. In the latter, during the months of April, May and June, when everything else is burnt up, the *Calligonum*, with its innumerable green leafless twigs, covers the waste of sand-hills with a mantle of verdure, yielding a favourite food to the camel, the proper beast of burden of the country. It is known to the people by the name of *Phoke*, and under this designation is first mentioned by Mr. Elphinstone in his account of the kingdom of Caubul. A species of *Ephedra* likewise occurs, which is also called by the same name; but the true plant is the *Calligonum*, and neither *Ephedra* nor *Asclepias acida* (the Soma plant) as some have supposed.

The following is a description of the plant taken from the specimen sent by Mr. Moore:—

*Megacarpæa polyandra*, Benth.—Leaf sent by Mr. Moore about a foot long—greatest breadth about 7 inches; deeply pinnatifid—lobes narrowish, tapering at the apex—toothed; upper surface dark green—under surface glaucous, covered with short hairs, many of which are glandular. Similar hairs occur on the petiole, which is thick, with ridges and grooves, flattened on the upper side and rounded below. Flowers in compact racemose clusters, of a yellowish-white colour, and having a strongish odour. Sepals whitish, with a yellowish and purplish tinge in some places, rugose, deciduous, broadly obovate, and convex externally. Petals smaller than the sepals—obovate, tapering below—rugose. Stamens varying from 11 to 13, some longer than others, but not apparently in any definite number; filaments thick—broader below. Anthers innate, two-lobed, yellow; green circle of glands round the base of the stamens, attached to a broadish thick receptacle. Ovary transversely elliptical, with a short style and large stigma—two-celled. Fruit a silicula, with the replum across its narrow part. Seed brownish, about  $1\frac{1}{4}$  inch in length, and about the same in breadth—winged; the wing nearly a quarter of an inch deep—veined; hilum straight or slightly curved, about half an inch long.

3. “Lowest Temperature indicated by the Register Thermometer (Fahr.); kept at the Botanic Garden, during April 1855,” by Mr. M’Nab.

Average lowest temperature for April  $33\frac{3}{4}^{\circ}$ .

4. “Register of the Flowering of Plants in the Botanic Garden, compared with the four preceding years,” by Mr. M’Nab.

5. “Remarks on Mr. Moore’s notice of the effects of the late winter at Dublin,” by Prof. Balfour.

6. “On the Disease of Finger and Toe in Root Crops,” by Sir John S. Forbes.

7. “Notice of the origin of the name *Chenopodium Bonus Henricus*,” by Mr. J. Hardy.

Lately, in turning over J. Bauhin’s ‘*Historia Plantarum*,’ I met with the following, tom. ii. p. 965.—“Dodon. Gall. et Lat. in fol. qui sub Tota Bona describit et depingit; ait Bonum Henricum a singulari quadam utili facultate vocari; veluti et perniciosam quandam plantam Malum Henricum appellant, de quo alibi dicendum.” I have not the Latin copy of Dodonæus, but in the English translation of Lyte, 1st ed. 1578, p. 561, this explanation is not given; we have, however, the English “Good Henry,” being a translation of the Dutch and German name. The term *Bonus Henricus* it appears from Mentzel (Index sub Lapath.) occurs in Brunfels’s Herbal, printed in 1532. I suspect, however, that it will be found in the ‘Herbarius’ of 1484, or the *Ortus Sanitatis*, as in an early Herbal that I possess, without a date, but published by Egenolf, who is said to have given an improved edition of Cuba’s work, I find the name *Gut Heinrich* over the figure of this plant. (This book of Egenolf has no text, being merely coloured figures.) The English

names are attached in MS. in a very old hand. "Good King Harry" occurs for the first time in Gerard, who says it was so called in Cambridgeshire (Johnson's edit. 1633, p. 329). *Malus Henricus* seems to have been *Lathræa squamaria*.

## MISCELLANEOUS.

### NEREIS BILINEATA.

To the Editors of the *Annals of Natural History*.

Weymouth, May 15, 1855.

GENTLEMEN,—I beg to draw your attention to a fact I have not seen noticed in print. It is, that *Nereis bilineata* constructs a tube for its domicile. Its usual habitat is the upper coils of any dead whelk that may have been selected by a *Pagurus* for its domicile. This Annelid is well known to the fishermen here, and by whom it is much used as a killing bait for whiting. I was not aware of the fact of its constructing a tube for itself until lately, when, on breaking off the top coils, I found that the worm had constructed a tube, with which it had lined its lodgings. The tube is perfectly white, rather strong, and not attached to the whelk shell.

I am, Gentlemen, yours obediently,

WILLIAM THOMPSON.

### On a New Species of *Thalassidroma*.

By GEORGE ROBERT GRAY, F.L.S. & F.Z.S.

A specimen of a Stormy Petrel, from the north-west coast of America, which has lately been kindly presented to the British Museum by Miss Hornby, differs from all those that I am acquainted with.

In form it agrees best with *Thalassidroma furcata*, but the coloration differs much in several particulars. Front, cheeks, throat, collar round the hind part of the neck, breast and abdomen pure white; crown, hind head, a broad band in front of neck, bend of wing and lesser wing-coverts sooty grey; upper part of back grey; lower part of back and tail ashy grey; greater wing-coverts brownish grey; tertiaries and quills deep black.

Total length,  $8\frac{1}{4}$ " ; bill from gape,  $10\frac{1}{2}$ " ; from front,  $8\frac{1}{2}$ " ; tail (outer feather),  $3\frac{3}{4}$ " ; tarsus, 1" ; middle toe, 1".

I propose to give this species the appellation of *Thalassidroma Hornbyi*, after Admiral Hornby, who obtained it during his command on the Pacific station, where he collected many interesting animals for his brother-in-law, the late President of this Society.—*Proc. Zool. Soc.*, May 10, 1853.

### On the Eggs of *Otogyps* and *Prosthemadera*.

By H. F. WALTER, Esq.

Mr. H. F. Walter exhibited specimens of the eggs of *Otogyps* and *Prosthemadera novæ seelandiæ* from his own collection.

The egg of *Otogyps* was obtained by Herr Ludwig Parreys of